Partnership Opportunity Document (POD)

for

NASA’s Goddard Space Flight Center (GSFC)

Linear Variable Filters

June 4, 2014

General Information

Contracting Office Address

NASA's Goddard Space Flight Center, Code 460.0, Greenbelt, MD 20771

1.0 Introduction and Scope

This partnership opportunity is for multiple NASA Planetary Mission Opportunities in 2014. NASA/GSFC is seeking partners for spaceflight instrument development for potential proposals to these opportunities.

GSFC mission teams will be submitting proposals that will include Discovery and Europa Instrument announcements currently scheduled for release in 2014. Both of these opportunities will be two-step processes, with the first proposal response being primarily focused on the scientific merit and technical feasibility of the proposed mission and its associated scientific investigation. The initial submissions will then be down-selected after formal peer review and the resultant subset of proposals will be funded to perform Phase A mission concept studies. During Phase A, proposals will be expanded and refined to detail the entire end-to-end life cycle concept, with greater attention to engineering implementation, cost, and schedule.

Information on the Discovery AO can be found in the Community Announcement Regarding Discovery Program Draft Announcement of Opportunity (http://nspires.nasaprs.com/external/viewrepositorydocument/cmdocumentid=398476/solicitationId=%7B0CA4625F-7B23-C1F5-9FC5-E695B3F0A50D%7D/viewSolicitationDocument=1/Discovery%20Community%20Announcement.pdf) The time frame for the solicitation is intended to be:

Release of draft AO.....May 2014 (target)
Release of final AO.....September 2014 (target)
Pre-proposal conference.....~3 weeks after final AO release
Proposals due.....90 days after AO release
Selection for competitive Phase A studies...May 2015 (target)
Concept study reports due.....April 2016 (target)
Down-selection.....October 2016 (target)
Launch readiness date.....NLT December 31, 2021

Information on the Europa Instrument Program Element Appendix (PEA) of the Stand Alone Missions of Opportunity Notice (SALMON-2) can be found in the Upcoming Europa Missions Announcement (https://www.fbo.gov/index?s=opportunity&mode=form&id=e713baa8075be75054d20f25693a4ecd&tab=core&_cview=0). The time frame for the solicitation is intended to be:

Release of PEA Community Announcement … Late April 2014 (target)

Release of final PEA ..... July 2014 (target)
PEA Pre-proposal conference ..... ~3 weeks after final PEA release
PEA Proposals due ..... 90 days after PEA release
Selection for competitive Phase A studies ….. April 2015 (target)
Concept study reports due ..... December 2015 (target)
Down-selection ..... April 2016 (target)

This partnership opportunity is being issued to interested and qualified teaming partners to help prepare the NASA/GSFC concepts for proposal submittal and to provide a flight qualified instrument subsystem should the instrument be selected for flight. This partnership opportunity is for the development, integration, test and delivery of linear variable filters (LVF)

For this partnership opportunity dealing with the preparation of the initial submission, there will be no exchange of funds between the teaming partners. Funding will be available for Phase A and subsequent phases should the investigation be approved to continue through the mission-defined gates for flight. NASA/GSFC reserves the option to not select any teaming partners under this POD offering on the basis of materials received.

2.0 Technical Objectives

2.1 Planetary science Decadal Survey goals require the investigation of planets and small bodies. The requested hardware will interface to the spacecraft and the instrument electronics.

2.2 Technical Information
2.2.1 Wavelength Range: 0.4 to 5.3 microns
2.2.2 Up to 5 filter segments with resolving powers up to 350
2.2.3 Total mass should be minimized where possible

2.2 Key Technologies –All technologies presented should have a pathway development for space deployment with Technology Readiness Level maturity of 6 by early 2017.

3.0 Pre-selection Support

3.1 Initial Proposal Support

SOW: It is expected that the selected respondent will provide support using their own resources (no exchange of funds) to help develop and write the mission proposal in response to the AO in the area of the LVF design and mission implementation. This will involve meeting with the scientists and the overall mission engineering team: (a) to help define the end-to-end performance and interface requirements; (b) to identify study topics; and (c) to predict performance. This will include cost estimation for each and all

mission phases. The period of performance for this interval is expected to last until submission of the initial proposal.

3.2 Phase A Study and Phase A Proposal Support

SOW: If the mission is selected for a Phase A study, the proposal team will receive funding to conduct a Phase A study and submit a detailed Concept Study Report (CSR) to NASA. The respondent providing the LVF will be allocated a portion of this total to continue proposal support during the CSR duration. The respondent will be expected to contribute to designing, documenting, and costing the LVF set for inclusion in the final Concept Study Report. The period of performance for this interval is detailed in the above timelines.

POD Response Instructions for Pre-Selection Support

The respondent shall:

1) Demonstrate understanding and experience in the design, fabrication, integration and testing of LVFs:
   - Identify the means of addressing system requirements that your team assumes are likely to exist and tasks the LVF is intended for,
   - Highlight particularly critical or challenging areas for the design of the LVF sets,
   - Provide a technical summary/description of the proposed hardware including relevant heritage with cost information.

2) Identify any recommended potential study topics related to the LVF set.

3) Indicate the level of resources to be allocated for the proposal phase.
   - Discuss skills that will be provided, the appropriate level of conceptual design, and analyses and trade studies to be performed.

4) Identify pertinent missions for which the respondent has previously provided support for proposal writing in the area of LVF design, fabrication, integration and testing for the technical specifications listed.

4.0 Development Support

SOW: Following CSR submittal, if the mission is selected for development and launch, the respondent will be responsible for the design, development, and test of the LVF set. The respondent is responsible for: identifying the LVF system requirements and providing all aspects of the LVF set (either directly, or through purchasing or teaming arrangements). The period of performance for this interval is expected to last approximately 46-66 months. The date will depend upon selection timelines and budget allocations.

POD Response Instructions for Development Support

The respondent shall:

1) Describe the level of experience with similar LVFs and level of experience of supporting personnel.
2) Identify available design and modeling capabilities required to support development of the LVFs.
3) Identify fabrication and testing facilities that will be required to support development and test of the LVFs.
4) Identify a level of sustaining engineering to assist in potential anomaly resolution during instrument and observatory environmental testing
5) Identify which missions the respondent has successfully supported (relevant to this POD and its technology) and provide a customer reference point of contact.
    - Provide information on recent similar LVFs designed and delivered, and describe how that experience is applicable to this mission. This shall include basic information on scope of work, how well the delivered LVFs met the cost and schedule estimates, and technical requirements.
6) Provide a Rough Order of Magnitude (ROM) cost estimate and timeline for the scope of the design, fabrication, and testing of the LVFs. This ROM will not be considered a binding commitment, but will serve as a consideration during the partnership evaluation. Due to the rigid cost cap for these opportunities, the cost range for the LVFs will be an important consideration. Cost savings for providing both sets of filters will receive strong consideration. The respondent is invited to comment on the reasonableness of the placeholder cost.
7) List ideas and methods of keeping costs low and the risk of cost growth low, including how to utilize existing open market hardware to minimize costs and provide a more robust system.

5.0 General Instructions for POD Response

Potential respondents are asked to contact NASA's GSFC team as soon as possible after release of this document with a **Notice Of Interest** (intentionally not called notice of intent). This contact does not create an obligation to respond to the POD, but allows NASA's GSFC team to disseminate more details on the parameters of the missions being considered and provide answers to questions from potential partners. **Notice of Interest respondents will receive further details on the LVF system specifications that will facilitate a focused response.** These details will be competition sensitive and not to be shared outside the teams necessary to prepare a full response.

All questions and answers will be sent to those organizations who respond to the Notice of Interest, while the source of the questions shall be held confidential. Questions and answers that contain information unique to a respondent's proprietary approach will not be shared if they are identified as such. Notice of Interest and Questions should be sent to the contact listed below via email. For purposes of this partnership opportunity, the contact is Michael Adams, Michael.L.Adams@nasa.gov, 301.286.2010.

Responses to the Partnership Opportunity Document (POD) shall:

1) Be in a presentation format (viewgraphs: such as PPT) that shall not exceed 20 pages. The font size for the text shall be no smaller than 12 point.
2) Address all requirements noted in Sections 3.0 through 6.0 of this document.

Responses will be treated as proprietary information and controlled as such by NASA's GSFC for the US Government.

The respondents shall deliver the requested information in a standard presentation format. Final presentation packages (electronic copy only) must be received by 5 pm EDT, June 20, 2014. Presentations are to be delivered to Michael Adams at the above listed email address.

6.0 Selection Criteria for Awarding Partnership Opportunity

The information requested in this Section will allow the evaluators to determine how well the respondent's LVF capabilities matches and enables the Discovery mission. Experience in AO proposals and mission development phases are essential for selection.

Selection Criteria

Proposal/Pre-selection Support (30 points)

- Experience (and Team skills) and past performance in proposal phases
- Resource commitment
- Identification and description of key critical areas
- Understanding and addressing general requirements and needs for the proposed LVF set on the target mission for which it is intended. Provide a discussion of the assumptions made.
- Recommended design studies

Development Support (70 points)

- Reasonableness of cost and schedule estimates
- Experience and past performance in development phases
- Experience and heritage with respect to similar space flight LVFs. Experience developing and implementing similar space flight LVF is a minimum requirement
- Completeness of identification of functions by mission phase
- Cost control measures
- Reasonableness of design and modeling capabilities to support the effort
- Reasonableness of fabrication and testing facilities to support the effort
- Mass of the LVF set
- Ability to survive and operate in target environment

7.0 Acronym List

AO Announcement of Opportunity

CSR	Concept Study Report
EDT	Eastern Daylight Time
GSFC	Goddard Space Flight Center
LVF	Linear Variable Filter
NASA	National Aeronautics and Space Administration
NOI	Notice of Interest
PEA	Program Element Appendix
POC	Point of Contact
POD	Partnership Opportunity Document
ROM	Rough Order of Magnitude
SALMON-2	Stand Alone Missions Of Opportunity Notice
SOW	Statement of Work